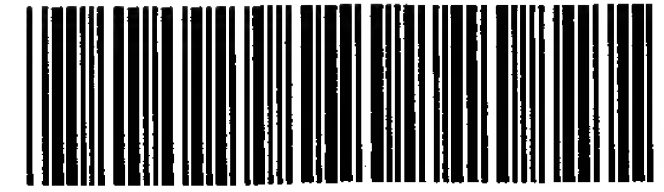


## RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: 09/845,157A  
Source: 1FW16  
Date Processed by STIC: 10/18/04

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IFW16

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/845,157A

DATE: 10/18/2004

TIME: 10:38:02

Input Set : A:\Sequence Listing.txt

Output Set: N:\CRF4\10182004\I845157A.raw

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5 <110> APPLICANT: Smith, Michael D.
6      Potter, Robert J.
7      Dhariwal, Gulshan
8      Gerard, Gary F.
9      Rosenthal, Kim
12 <120> TITLE OF INVENTION: Thermostable Reverse Transcriptases and Uses Thereof
16 <130> FILE REFERENCE: 0942.5040001/RWE/MTT
20 <140> CURRENT APPLICATION NUMBER: US 09/845,157A
22 <141> CURRENT FILING DATE: 2001-05-01
26 <150> PRIOR APPLICATION NUMBER: US 60/207,196
28 <151> PRIOR FILING DATE: 2000-05-26
32 <160> NUMBER OF SEQ ID NOS: 8
36 <170> SOFTWARE: PatentIn version 3.0
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42 <211> LENGTH: 2151
44 <212> TYPE: DNA
46 <213> ORGANISM: Moloney-Murine Leukemia Virus
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51 <221> NAME/KEY: CDS
53 <222> LOCATION: (1)..(2151)
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61 ggt gga cag caa atg ggt cgg gat ctg tac gac gat gac gat aag cat      96
62 Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr Asp Asp Asp Asp Lys His
63          20          25          30
65 atg acc cta aat ata gaa gat gag tat cgg cta cat gag acc tca aaa      144
66 Met Thr Leu Asn Ile Glu Asp Glu Tyr Arg Leu His Glu Thr Ser Lys
67          35          40          45
69 gag cca gat gtt tct cta ggg tcc aca tgg ctg tct gat ttt cct cag      192
70 Glu Pro Asp Val Ser Leu Gly Ser Thr Trp Leu Ser Asp Phe Pro Gln
71          50          55          60
73 gcc tgg gcg gaa acc ggg ggc atg gga ctg gca gtt cgc caa gct cct      240
74 Ala Trp Ala Glu Thr Gly Gly Met Gly Leu Ala Val Arg Gln Ala Pro
75 65          70          75          80
77 ctg atc ata ctt ctg aaa gca acc tct acc ccc gtg tcc ata aaa caa      288
78 Leu Ile Ile Leu Leu Lys Ala Thr Ser Thr Pro Val Ser Ile Lys Gln
79          85          90          95
81 tac ccc atg tca caa gaa gcc aga ctg ggg atc aag ccc cac ata cag      336
82 Tyr Pro Met Ser Gln Glu Ala Arg Leu Gly Ile Lys Pro His Ile Gln
83          100          105          110
85 aga ctg ttg gac cag gga ata ctg gta ccc tgc cag tcc ccc tgg aac      384

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## RAW SEQUENCE LISTING

DATE: 10/18/2004

PATENT APPLICATION: US/09/845,157A

TIME: 10:38:02

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Output Set: N:\CRF4\10182004\I845157A.raw

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87			115					120					125				
89	acg	ccc	ctg	cta	ccc	gtc	aag	aaa	ccc	ggg	act	aat	gat	tac	agg	cct	432
90	Thr	Pro	Leu	Leu	Pro	Val	Lys	Lys	Pro	Gly	Thr	Asn	Asp	Tyr	Arg	Pro	
91			130				135					140					
93	gtc	caa	gat	ctg	aga	gag	gtc	aac	aaa	cgc	gta	gaa	gac	atc	cac	ccc	480
94	Val	Gln	Asp	Leu	Arg	Glu	Val	Asn	Lys	Arg	Val	Glu	Asp	Ile	His	Pro	
95	145					150				155					160		
97	acc	gta	ccc	aac	ccc	tac	aac	ctc	ttg	agt	ggg	ctc	cca	ccg	tcc	cac	528
98	Thr	Val	Pro	Asn	Pro	Tyr	Asn	Leu	Leu	Ser	Gly	Leu	Pro	Pro	Ser	His	
99				165				170				175					
101	cag	tgg	tac	act	gtt	cta	gac	tta	aaa	gat	gcc	ttt	ttc	tgc	ctg	aga	576
102	Gln	Trp	Tyr	Thr	Val	Leu	Asp	Leu	Lys	Asp	Ala	Phe	Phe	Cys	Leu	Arg	
103				180				185				190					
105	ctc	cac	ccg	acg	tct	cag	cct	ctc	ttc	gcc	ttt	gaa	tgg	aga	gac	cca	624
106	Leu	His	Pro	Thr	Ser	Gln	Pro	Leu	Phe	Ala	Phe	Glu	Trp	Arg	Asp	Pro	
107			195				200				205						
109	gag	atg	gga	atc	tct	ggc	caa	cta	acc	tgg	acc	aga	ctc	cca	cag	gga	672
110	Glu	Met	Gly	Ile	Ser	Gly	Gln	Leu	Thr	Trp	Thr	Arg	Leu	Pro	Gln	Gly	
111		210				215				220							
113	ttc	aaa	aac	agt	ccc	acc	ctg	ttt	gat	gag	gca	ctg	cgc	aga	gac	cta	720
114	Phe	Lys	Asn	Ser	Pro	Thr	Leu	Phe	Asp	Glu	Ala	Leu	Arg	Arg	Asp	Leu	
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117	gca	gac	ttc	cgg	atc	cag	cac	cca	gac	ttg	atc	ctg	cta	cag	tac	gta	768
118	Ala	Asp	Phe	Arg	Ile	Gln	His	Pro	Asp	Leu	Ile	Leu	Leu	Gln	Tyr	Val	
119				245				250				255					
121	gat	gac	tta	ctg	ctg	gcc	gcc	act	tct	gag	ctc	gac	tgc	caa	caa	ggt	816
122	Asp	Asp	Leu	Leu	Leu	Ala	Ala	Thr	Ser	Glu	Leu	Asp	Cys	Gln	Gln	Gly	
123			260				265				270						
125	act	cgg	gcc	ctg	tta	caa	acc	cta	gga	gac	ctc	ggg	tat	cgg	gcc	tcg	864
126	Thr	Arg	Ala	Leu	Leu	Gln	Thr	Leu	Gly	Asp	Leu	Gly	Tyr	Arg	Ala	Ser	
127		275				280				285							
129	gcc	aag	aaa	gcc	caa	att	tgc	cag	aaa	cag	gtc	aag	tat	ctg	ggg	tat	912
130	Ala	Lys	Lys	Ala	Gln	Ile	Cys	Gln	Lys	Gln	Val	Lys	Tyr	Leu	Gly	Tyr	
131		290				295			300								
133	ctt	cta	aaa	gag	ggt	cag	aga	tgg	ctg	act	gag	gcc	aga	aaa	gag	act	960
134	Leu	Leu	Lys	Glu	Gly	Gln	Arg	Trp	Leu	Thr	Glu	Ala	Arg	Lys	Glu	Thr	
135	305				310				315			320					
137	gtg	atg	ggg	cag	cct	act	ccg	aag	acc	ccg	cgg	caa	cta	agg	gag	ttc	1008
138	Val	Met	Gly	Gln	Pro	Thr	Pro	Lys	Thr	Pro	Arg	Gln	Leu	Arg	Glu	Phe	
139				325			330				335						
141	cta	ggg	acg	gca	ggc	ttc	tgt	cgc	ctc	tgg	atc	cct	ggg	ttt	gca	gaa	1056
142	Leu	Gly	Thr	Ala	Gly	Phe	Cys	Arg	Leu	Trp	Ile	Pro	Gly	Phe	Ala	Glu	
143			340				345				350						
145	atg	gca	gcc	ccc	ttg	tac	cct	ctc	acc	aaa	acg	ggg	act	ctg	ttt	aat	1104
146	Met	Ala	Ala	Pro	Leu	Tyr	Pro	Leu	Thr	Lys	Thr	Gly	Thr	Leu	Phe	Asn	
147		355				360			365								
149	tgg	ggc	cca	gac	caa	caa	aag	gcc	tat	caa	gaa	atc	aag	caa	gct	ctt	1152
150	Trp	Gly	Pro	Asp	Gln	Gln	Lys	Ala	Tyr	Gln	Glu	Ile	Lys	Gln	Ala	Leu	

## RAW SEQUENCE LISTING

DATE: 10/18/2004

PATENT APPLICATION: US/09/845,157A

TIME: 10:38:02

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154	Leu Thr Ala Pro Ala Leu Gly Leu Pro Asp Leu Thr Lys Pro Phe Glu			
155	385 390 395 400			
157	ctc ttt gtc gac gag aag cag ggc tac gcc aaa ggt gtc cta acg caa	1248		
158	Leu Phe Val Asp Glu Lys Gln Gly Tyr Ala Lys Gly Val Leu Thr Gln			
159	405 410 415			
161	aaa ctg gga cct tgg cgt cgg ccg gtg gcc tac ctg tcc aaa aag cta	1296		
162	Lys Leu Gly Pro Trp Arg Arg Pro Val Ala Tyr Leu Ser Lys Lys Leu			
163	420 425 430			
165	gac cca gta gca gct ggg tgg ccc cct tgc cta cgg atg gta gca gcc	1344		
166	Asp Pro Val Ala Ala Gly Trp Pro Pro Cys Leu Arg Met Val Ala Ala			
167	435 440 445			
169	att gcc gta ctg aca aag gat gca ggc aag cta acc atg gga cag cca	1392		
170	Ile Ala Val Leu Thr Lys Asp Ala Gly Lys Leu Thr Met Gly Gln Pro			
171	450 455 460			
173	cta gtc att ctg gcc ccc cat gca gta gag gca cta gtc aaa caa ccc	1440		
174	Leu Val Ile Leu Ala Pro His Ala Val Glu Ala Leu Val Lys Gln Pro			
175	465 470 475 480			
177	ccc gat cga tgg ctt tcc aac gcc cgg atg act cac tat cag gcc ttg	1488		
178	Pro Asp Arg Trp Leu Ser Asn Ala Arg Met Thr His Tyr Gln Ala Leu			
179	485 490 495			
181	ctt ttg gac acg gac cgg gtc cag ttc gga ccg gtg gta gcc ctg aac	1536		
182	Leu Leu Asp Thr Asp Arg Val Gln Phe Gly Pro Val Val Ala Leu Asn			
183	500 505 510			
185	ccg gct aca ctg ctc cca ctg cct gag gaa ggg ctg cag cac aac tgc	1584		
186	Pro Ala Thr Leu Leu Pro Leu Pro Glu Glu Gly Leu Gln His Asn Cys			
187	515 520 525			
189	ctt gat atc ctg gcc gaa gcc cac gga acc cga ccc gac cta acg gac	1632		
190	Leu Asp Ile Leu Ala Glu Ala His Gly Thr Arg Pro Asp Leu Thr Asp			
191	530 535 540			
193	cag ccg ctc cca gac gcc gac cac acc tgg tac acg ggt gga tcc agt	1680		
194	Gln Pro Leu Pro Asp Ala Asp His Thr Trp Tyr Thr Gly Gly Ser Ser			
195	545 550 555 560			
197	ctc ttg caa gag gga cag cgt aag gcg gga gct gcg gtg acc acc gag	1728		
198	Leu Leu Gln Glu Gly Gln Arg Lys Ala Gly Ala Ala Val Thr Thr Glu			
199	565 570 575			
201	acc gag gta atc tgg gct aaa gcc ctg cca gcc ggg aca tcc gct cag	1776		
202	Thr Glu Val Ile Trp Ala Lys Ala Leu Pro Ala Gly Thr Ser Ala Gln			
203	580 585 590			
205	cgg gct cag ctg ata gca ctc acc cag gcc cta agg atg gca gaa ggt	1824		
206	Arg Ala Gln Leu Ile Ala Leu Thr Gln Ala Leu Arg Met Ala Glu Gly			
207	595 600 605			
209	aag aag cta aat gtt tat acg aat tcc cgt tat gct ttt gct act gcc	1872		
210	Lys Lys Leu Asn Val Tyr Thr Asn Ser Arg Tyr Ala Phe Ala Thr Ala			
211	610 615 620			
213	cat atc cat gga gaa ata tac aga agg cgt ggg ttg ctc aca tca gaa	1920		
214	His Ile His Gly Glu Ile Tyr Arg Arg Arg Gly Leu Leu Thr Ser Glu			
215	625 630 635 640			

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DATE: 10/18/2004

PATENT APPLICATION: US/09/845,157A

TIME: 10:38:02

Input Set : A:\Sequence Listing.txt

Output Set: N:\CRF4\10182004\I845157A.raw

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219          645          650          655
221 ctc ttt ctg ccc aaa aga ctt agc ata atc cat tgt cca gga cat caa      2016
222 Leu Phe Leu Pro Lys Arg Leu Ser Ile Ile His Cys Pro Gly His Gln
223          660          665          670
225 aag gga cac agc gcc gag gct aga ggc aac cgg atg gct gac caa gcg      2064
226 Lys Gly His Ser Ala Glu Ala Arg Gly Asn Arg Met Ala Asp Gln Ala
227          675          680          685
229 gcc cga aag gca gcc atc aca gag aat cca gac acc tct acc ctc ctc      2112
230 Ala Arg Lys Ala Ala Ile Thr Glu Asn Pro Asp Thr Ser Thr Leu Leu
231          690          695          700
233 ata gaa aat tca tca ccc aat tcc cgc tta att aat taa      2151
234 Ile Glu Asn Ser Ser Pro Asn Ser Arg Leu Ile Asn
235 705          710          715
238 <210> SEQ ID NO: 2
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242 <212> TYPE: PRT
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257 Met Thr Leu Asn Ile Glu Asp Glu Tyr Arg Leu His Glu Thr Ser Lys
258          35          40          45
261 Glu Pro Asp Val Ser Leu Gly Ser Thr Trp Leu Ser Asp Phe Pro Gln
262          50          55          60
265 Ala Trp Ala Glu Thr Gly Gly Met Gly Leu Ala Val Arg Gln Ala Pro
266 65          70          75          80
269 Leu Ile Ile Leu Leu Lys Ala Thr Ser Thr Pro Val Ser Ile Lys Gln
270          85          90          95
273 Tyr Pro Met Ser Gln Glu Ala Arg Leu Gly Ile Lys Pro His Ile Gln
274          100          105          110
277 Arg Leu Leu Asp Gln Gly Ile Leu Val Pro Cys Gln Ser Pro Trp Asn
278          115          120          125
281 Thr Pro Leu Leu Pro Val Lys Lys Pro Gly Thr Asn Asp Tyr Arg Pro
282          130          135          140
285 Val Gln Asp Leu Arg Glu Val Asn Lys Arg Val Glu Asp Ile His Pro
286 145          150          155          160
289 Thr Val Pro Asn Pro Tyr Asn Leu Leu Ser Gly Leu Pro Pro Ser His
290          165          170          175
293 Gln Trp Tyr Thr Val Leu Asp Leu Lys Asp Ala Phe Phe Cys Leu Arg
294          180          185          190
297 Leu His Pro Thr Ser Gln Pro Leu Phe Ala Phe Glu Trp Arg Asp Pro
298          195          200          205
301 Glu Met Gly Ile Ser Gly Gln Leu Thr Trp Thr Arg Leu Pro Gln Gly
302          210          215          220
305 Phe Lys Asn Ser Pro Thr Leu Phe Asp Glu Ala Leu Arg Arg Asp Leu

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## RAW SEQUENCE LISTING

DATE: 10/18/2004

PATENT APPLICATION: US/09/845,157A

TIME: 10:38:02

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306	225				230				235				240			
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313	Asp	Asp	Leu	Leu	Leu	Ala	Ala	Thr	Ser	Glu	Leu	Asp	Cys	Gln	Gln	Gly
314					260				265				270			
317	Thr	Arg	Ala	Leu	Leu	Gln	Thr	Leu	Gly	Asp	Leu	Gly	Tyr	Arg	Ala	Ser
318					275				280				285			
321	Ala	Lys	Lys	Ala	Gln	Ile	Cys	Gln	Lys	Gln	Val	Lys	Tyr	Leu	Gly	Tyr
322		290					295				300					
325	Leu	Leu	Lys	Glu	Gly	Gln	Arg	Trp	Leu	Thr	Glu	Ala	Arg	Lys	Glu	Thr
326	305					310				315					320	
329	Val	Met	Gly	Gln	Pro	Thr	Pro	Lys	Thr	Pro	Arg	Gln	Leu	Arg	Glu	Phe
330					325				330				335			
333	Leu	Gly	Thr	Ala	Gly	Phe	Cys	Arg	Leu	Trp	Ile	Pro	Gly	Phe	Ala	Glu
334				340					345				350			
337	Met	Ala	Ala	Pro	Leu	Tyr	Pro	Leu	Thr	Lys	Thr	Gly	Thr	Leu	Phe	Asn
338			355					360				365				
341	Trp	Gly	Pro	Asp	Gln	Gln	Lys	Ala	Tyr	Gln	Glu	Ile	Lys	Gln	Ala	Leu
342		370					375				380					
345	Leu	Thr	Ala	Pro	Ala	Leu	Gly	Leu	Pro	Asp	Leu	Thr	Lys	Pro	Phe	Glu
346	385				390				395				400			
349	Leu	Phe	Val	Asp	Glu	Lys	Gln	Gly	Tyr	Ala	Lys	Gly	Val	Leu	Thr	Gln
350				405					410				415			
353	Lys	Leu	Gly	Pro	Trp	Arg	Arg	Pro	Val	Ala	Tyr	Leu	Ser	Lys	Lys	Leu
354				420					425				430			
357	Asp	Pro	Val	Ala	Ala	Gly	Trp	Pro	Pro	Cys	Leu	Arg	Met	Val	Ala	Ala
358			435					440				445				
361	Ile	Ala	Val	Leu	Thr	Lys	Asp	Ala	Gly	Lys	Leu	Thr	Met	Gly	Gln	Pro
362		450					455				460					
365	Leu	Val	Ile	Leu	Ala	Pro	His	Ala	Val	Glu	Ala	Leu	Val	Lys	Gln	Pro
366	465				470				475				480			
369	Pro	Asp	Arg	Trp	Leu	Ser	Asn	Ala	Arg	Met	Thr	His	Tyr	Gln	Ala	Leu
370				485					490				495			
373	Leu	Leu	Asp	Thr	Asp	Arg	Val	Gln	Phe	Gly	Pro	Val	Val	Ala	Leu	Asn
374			500					505				510				
377	Pro	Ala	Thr	Leu	Leu	Pro	Leu	Pro	Glu	Glu	Gly	Leu	Gln	His	Asn	Cys
378			515					520				525				
381	Leu	Asp	Ile	Leu	Ala	Glu	Ala	His	Gly	Thr	Arg	Pro	Asp	Leu	Thr	Asp
382		530					535				540					
385	Gln	Pro	Leu	Pro	Asp	Ala	Asp	His	Thr	Trp	Tyr	Thr	Gly	Gly	Ser	Ser
386	545				550				555				560			
389	Leu	Leu	Gln	Glu	Gly	Gln	Arg	Lys	Ala	Gly	Ala	Ala	Val	Thr	Thr	Glu
390				565				570				575				
393	Thr	Glu	Val	Ile	Trp	Ala	Lys	Ala	Leu	Pro	Ala	Gly	Thr	Ser	Ala	Gln
394			580					585				590				
397	Arg	Ala	Gln	Leu	Ile	Ala	Leu	Thr	Gln	Ala	Leu	Arg	Met	Ala	Glu	Gly
398			595				600				605					
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RAW SEQUENCE LISTING ERROR SUMMARY  
PATENT APPLICATION: US/09/845,157A

DATE: 10/18/2004  
TIME: 10:38:03

Input Set : A:\Sequence Listing.txt  
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Invalid <213> Response:

Use of "Artificial" only as "<213> Organism" response is incomplete,  
per 1.823(b) of New Sequence Rules. Valid response is Artificial Sequence.

Seq#:3,4,5

**VERIFICATION SUMMARY**

DATE: 10/18/2004

PATENT APPLICATION: US/09/845,157A

TIME: 10:38:03

Input Set : A:\Sequence Listing.txt

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